

1 **NANOSTRUCTURED CHEMICALS AS ALLOYING AGENTS**
2 **IN FLUORINATED POLYMERS**
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4 **Cross-Reference to Related Applications**

5 This application claims the benefit of U.S. Provisional Application No. 60/459,357 filed
6 on March 31, 2003, and is a continuation-in-part of U.S. Patent Application No. 09/818,265 filed
7 *now US Patent 6,716,919,*
8 March 26, 2001, which claims the benefit of U.S. Provisional Application No. 60/192,083, filed
9 March 24, 2000.

10 **Field of the Invention**

11 This invention relates generally to methods for enhancing the properties of thermoplastic
12 and thermoset fluorinated polymer and fluid compositions and, more particularly, to methods for
13 the incorporation of nanostructured chemicals into fluorinated polymers and fluorinated fluids.

14 This invention also relates to several applications of the fluorinated polymers with
15 improved properties. These applications include space-survivable materials and creep resistant
16 seals and gaskets. Improved polymer surface properties may be useful for applications such as
17 anti-icing or non-wetting surfaces or as low friction surfaces.

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19 **BACKGROUND OF THE INVENTION**

20 It has long been recognized that the properties of polymers can be tailored to a high
21 degree through variables such as polymer sequence, structure, additive and filler incorporation,
22 composition, morphology, thermodynamic and kinetic processing control. It is similarly known
23 that various sizes and shapes of fillers, and particulates (e.g. calcium carbonate, silica, carbon